HM2384DR

N-Channel Enhancement Mode MOSFET

➢ Features

VDS	VGS	RDSON Typ.	ID
20V	±12V	11mR@10V	8A
		13mR@4V5	
		16mR@2V5	

➢ Description

Advance trench process technology.

High density cell design for ultralow on-resistance.

High power and current handling capability.

Fully characterized avalanche voltage and current.

➢ Applications

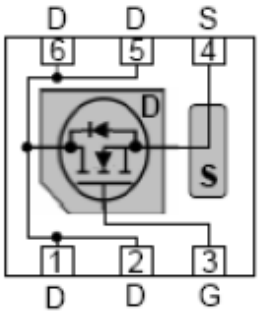
- Load Switch
- Li-ion battery protection

➢ Ordering Information

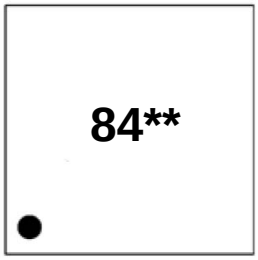
Device	Package	Shipping
HM2384DR	DFN2x2	3000/Reel

➢ Pin configuration

Top view



Bottom View



Marking

➢ Absolute Maximum Ratings(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	20	V
V_{GSS}	Gate-to-Source Voltage	±12	V
I_D	Continuous Drain Current [a]	8	A
I_{DM}	Pulsed Drain Current [b]	30	A
P_D	Power Dissipation [c]	3.8	W
P_{DSM}	Power Dissipation [a]	1.8	W
T_J	Operation junction temperature	-25 to 85	℃
T_{STG}	Storage temperature range	-55 to 150	℃

➢ Thermal Resistance Ratings(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]		75	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		35	

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper,in a still air environment with T_A=25℃.The value in any given application depends on the user is specific board design. The current rating is based on the t≤ 10s thermal resistance rating.

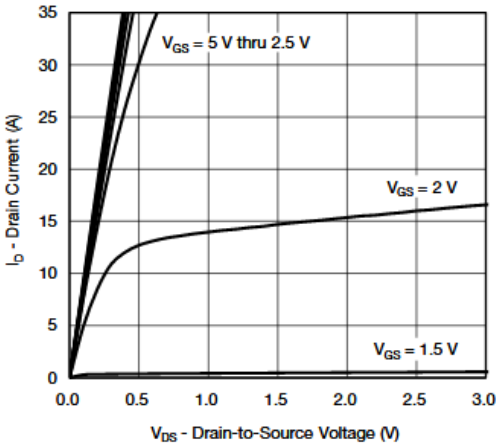
b. Repetitive rating, pulse width limited by junction temperature.

c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

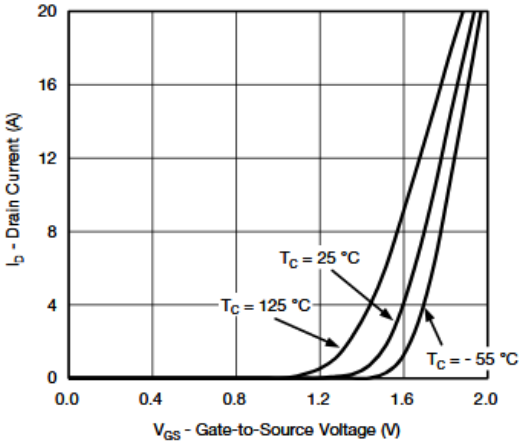
➢ **Electronics Characteristics**(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V,ID=250uA	20			V
$V_{GS\ (th)}$	Gate Threshold Voltage	VDS=VGS,ID=250uA	0.5	0.7	1	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=10V,ID=4.5A		11	12	mR
		VGS=4.5V,ID=3.5A		13	15	
		VGS=2.5V,ID=2.5A		16	18	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=16V,VGS=0V			1	uA
I_{GSS}	Gate-Source leak current	VGS=±12V,VDS=0V			±100	nA
G_{FS}	Transconductance	VDS=5V,ID=4.5A		10		S
V_{SD}	Forward Voltage	VGS=0V,IS=0.5A		0.8	1.3	V
Ciss	Input Capacitance	VDS=10V, VGS=0V, f=1MHz		600		pF
Coss	Output Capacitance			330		
Crss	Reverse Transfer Capacitance			140		
$T_{D(ON)}$	Turn-on delay time	VGEN=4.5V, RL=10R, VDS=10V, RG=6R,ID=1A		7		ns
Tr	Rise Time			13		
$T_{D(OFF)}$	Turn-off delay time			48		
Tf	Fall Time			22		
Qg	Total Gate charge	VGS=4.5V, VDS=10V, ID=4A		8.5		nC
Qgs	Gate to Source charge			1.8		
Qgd	Gate to Drain charge			2.2		

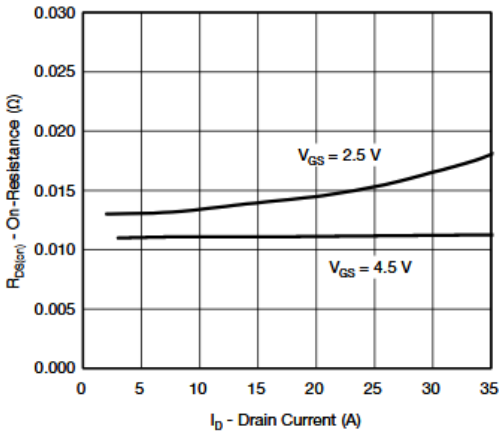
➢ **Typical Characteristics**(T_A=25℃ unless otherwise noted)



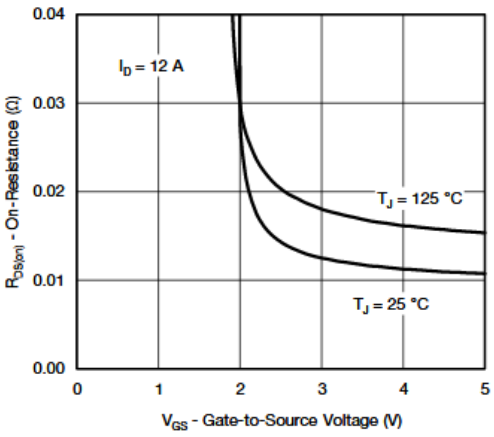
Output Characteristics



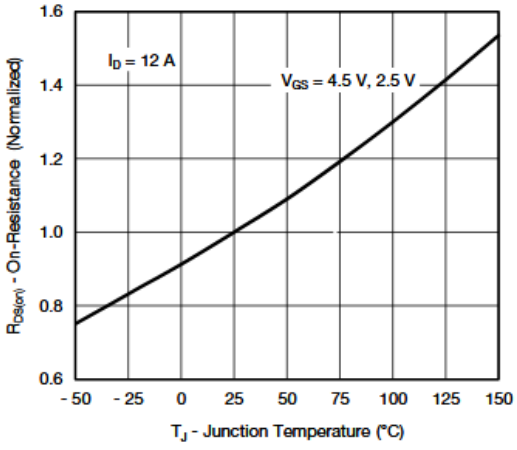
Transfer Characteristics



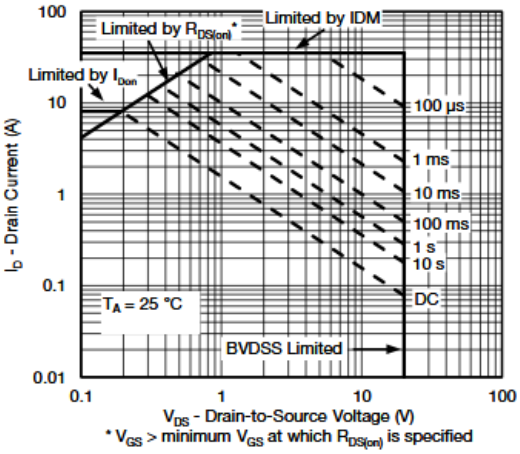
On-Resistance vs. Drain Current and Gate Voltage



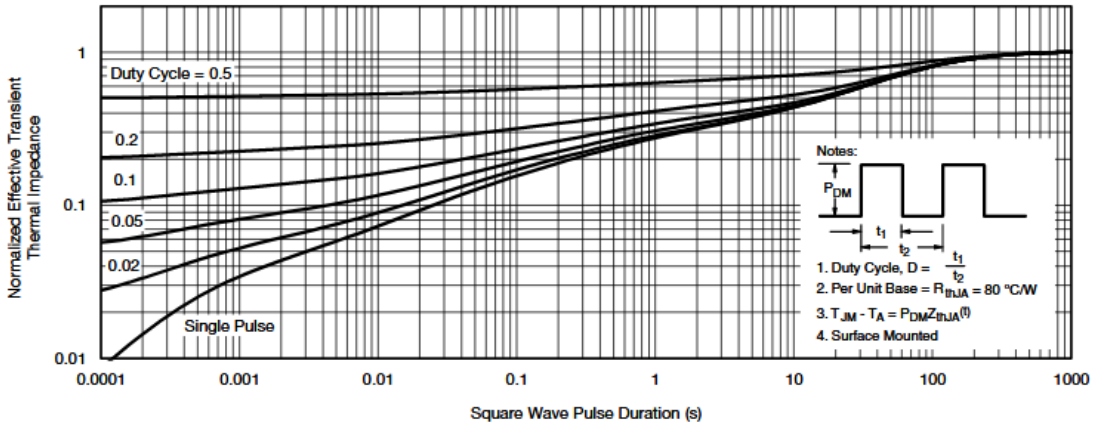
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

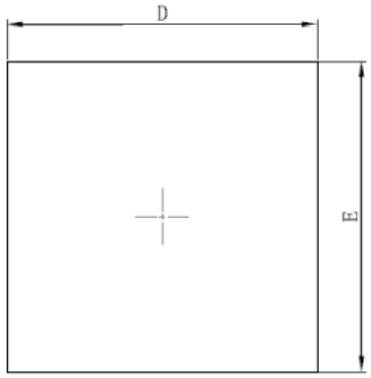


Safe Operating Area, Junction-to-Ambient

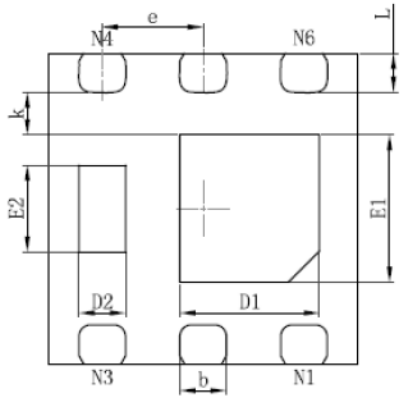


Normalized Thermal Transient Impedance, Junction-to-Ambient

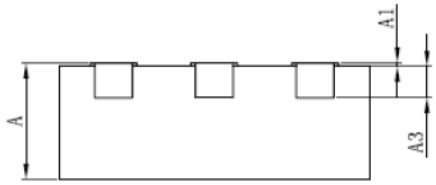
➢ Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

DFN2x2-6L

Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.700	0.800
A1	0.000	0.050
A3	0.203REF.	
D	1.924	2.076
E	1.924	2.076
D1	0.800	1.000
E1	0.850	1.050
D2	0.200	0.400
E2	0.460	0.660
k	0.200MIN.	
b	0.250	0.350
e	0.650TYP.	
L	0.174	0.326